

"Acorn-shaped" setae not restricted to abdominal segments, not constricted apically; multilocular disk pores of dorsum with 6 macroloculi within circle of microloculi ..... **morrisoni** McDaniel

## REFERENCES

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- Morrison, H.** 1928. A classification of the higher groups and genera of the coccid family Margarodidae. U.S. Dept. Agr. Tech. Bull. 52: 72-78.

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**THE NEARCTIC DORYCTINAE, III. THE GENUS  
CALLIHORMIUS ASHMEAD  
(HYMENOPTERA: BRACONIDAE)**

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Ashmead (1900, p. 148) characterized the genus *Callihormius* only as he included it in his key to the Ichneumonoidea, placing it in his subfamily Spathiinae, tribe Hormiini. However, *Callihormius* belongs in the subfamily Doryctinae, tribe Doryctini, as I have defined it (Marsh, 1965). In the present study, I have interpreted the genus in a broader sense than has been done previously. For instance, one of the species described below, *stigmatus*, has a stigma in the male hind wing; my earlier diagnosis of the genus indicated that no stigma is present in the male (*ibid.*, p. 697). The presence or absence of a stigma in the hind wing has been given generic value, but I believe that, as more genera of the Doryctinae are critically studied, this character will not always be generically significant.

*Callihormius* contains five Nearctic species, four of which are described as new. The known hosts include larvae of beetles of the families Buprestidae and Cerambycidae.

Genus **Callihormius** Ashmead

*Callihormius* Ashmead, 1900, p. 148. Type-species: *Pambolus bifasciatus* Ashmead, 1892. Monob. and orig. desig.

Head transverse; first flagellar segment longer than second; notauli absent or very weakly indicated; scutellar disc sometimes greatly convex or swollen; fore tibia with a row of 5-10 spines on anterior edge; fore wing with three cubital cells; recurrent vein entering first cubital cell; subdiscoideus leaving first brachial cell well above its middle, first brachial cell open at apex; media somewhat sinuate; fore wing with two or three dark transverse bands; radiella, cubitella, and post-

nervellus very weak or absent; one species with a stigma in hind wing of male; abdomen longitudinally rugose on at least first tergum and basal one-half of tergum (2 + 3).

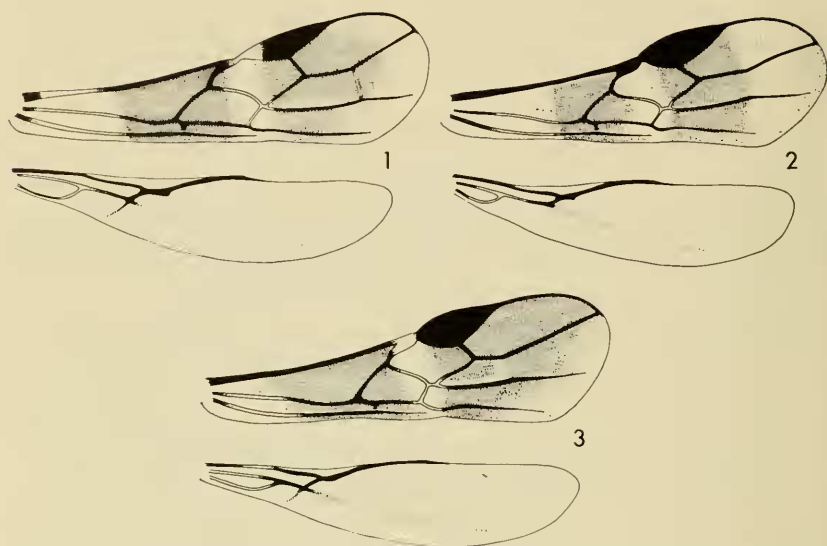
KEY TO NEARCTIC SPECIES

- |  |                              |
|--|------------------------------|
| 1. Males .....   | 2                            |
| Females .....  | 3                            |
| 2. Hind wing with a large stigma (fig. 5) .....  | <b>stigmatus</b> Marsh       |
| Hind wing without a stigma .....   | <b>bifasciatus</b> (Ashmead) |
| 3. Ovipositor at least nearly as long as abdomen, usually longer .....   | 4                            |
| Ovipositor at most equal to one-half length of abdomen .....   | 5                            |
| 4. First abdominal tergum longer than its apical width; mesonotum with a large, longitudinally rugose area in front of scutellar furrow (fig. 6); cubitus between recurrent vein and first intercubitus greater than one-half length of first segment of radius (fig. 4) ..... | <b>stigmatus</b> Marsh       |
| First abdominal tergum shorter than its apical width; mesonotum lacking a rugose area or, rarely, with a small one in front of scutellar furrow; cubitus between recurrent vein and first intercubitus shorter than one-half length of first segment of radius (fig. 2) ...    | <b>bifasciatus</b> (Ashmead) |
| 5. Second segment of radius less than 1.5 times length of first (fig. 3); scutellum flat; abdominal terga sculptured beyond (2+3) ..   | <b>weneri</b> Marsh          |
| Second segment at radius at least twice length of first; scutellum convex; abdominal terga smooth beyond (2 + 3) .....   | 6                            |
| 6. Thorax dark brown; mesopleural disc granular; fore wing with two dark cross bands (fig. 1) .....  | <b>bajaensis</b> Marsh       |
| Thorax light brown; mesopleural disc smooth; fore wing with three dark cross bands (fig. 7) .....  | <b>texanus</b> Marsh         |

**Callihormius bajaensis**, n. sp.  
(Fig. 1)

*Female*.—Length 4.5 mm. Dark brown except head and tarsi lighter brown and antennae honey yellow with apical segments dark brown. Vertex and frons granular, temples smooth, face rugulose; distance between lateral ocelli nearly one-half ocellocular distance; malar space about two-thirds eye height; antennae 26-segmented. Pronotum lengthened, dorsal length greater than scutellar disc; mesonotum granular; notauli very weakly indicated, with a small v-shaped foveolate area where they meet before scutellar furrow; scutellar furrow with 7 cross carinae; scutellar disc granular, convex, rounded; propodeum without definite carinae, rugose, sloping gradually to apex; propleuron and mesopleural disc granular; mesopleural furrow weakly foveolate, nearly equal in length to mesopleural width. Legs granular, fore legs weakly so. Wing venation as in fig. 1; cubitus beyond recurrent vein very short, recurrent entering extreme apex of first cubital cell. First abdominal tergum longer than its apical width, longitudinally rugose and granular, with a definite raised median area; spiracles prominent; tergum (2 + 3) longitudinally rugose and granular on basal two-thirds; remainder of abdominal terga smooth; ovipositor equal to one-half length of abdomen.

*Male*.—Unknown.



Figs. 1-3, fore and hind wings of *Callihormius* species, females: fig. 1, *bajaensis*; fig. 2, *bifasciatus*; fig. 3, *werneri*.

*Holotype Female*.—MEXICO: Baja California, 2.8 miles SSE of Todos Santos, December 25, 1958, H. B. Leech, by beating dead leaves of living *Yucca valida*. USNM type no. 68922.

*Paratypes*.—2 ♀♀, same data as for type. Deposited in U. S. National Museum.

This species is similar to *texanus* but is easily recognized by its darker color, wing maculation, and granular mesopleural disc. The number of antennal segments in the type series ranges from 23-27 and the size from 3-4.5 mm.

*Distribution*.—Known only from northern Baja California.

*Host*.—Unknown.

#### *Callihormius bifasciatus* (Ashmead)

(Fig. 2)

*Pambolus bifasciatus* Ashmead, 1892, p. 289. Lectotype in U. S. National Museum.

*Female*.—Length 3-4 mm. Thorax and abdomen beyond tergum (2 + 3) dark brown; head, legs, and abdominal terga 1 and (2 + 3) lighter brown; antennae yellowish-brown, apical segments dark brown. Head entirely granular, width greater than length or height; eyes large, malar space equal to one-half eye height; antennae 19 to 25-segmented; distance between lateral ocelli less than ocellocular distance. Mesonotum granular; notauli absent except for weak indications anteriorly; pronotum rugose, dorsal length equal to length of scutellar disc; propleuron finely granular; scutellar furrow with 8-10 cross carinae; scutellar disc

finely granular, usually swollen, rarely somewhat flattened; rounded in transverse section when swollen; mesopleural disc granular; mesopleural furrow shallow, weakly foveolate, slightly longer than one-half mesopleural width; basilateral areas of propodeum smooth or finely granular; remainder of propodeum rugose. Fore wings with two dark cross bands; venation as in fig. 2. Length of first abdominal tergum less than apical width; first tergum longitudinally rugose, median area not distinctly raised; tergum (2 + 3) longitudinally rugose, with two or three transverse grooves; basal three-fourths of fourth and fifth terga longitudinally rugose, remainder of terga smooth or slightly granular; ovipositor usually as long as abdomen, sometimes slightly shorter.

*Male*.—Essentially as in female; length 2.5–4 mm; color sometimes darker.

*Type Locality*.—Morgantown, West Virginia.

Ashmead did not designate a type specimen in his original description. I have, therefore, chosen as the lectotype of *bifasciatus* a specimen from Ashmead's type series to which is attached a label with the number 3241 printed on it and another label in Ashmead's handwriting, "Pambolus bifasciatus Ashm." The above mentioned number refers to Ashmead's notes which state that this specimen was reared by A. D. Hopkins at Morgantown, West Virginia, from *Anthaxia viridicornis* (Say) in willow. I have attached a red lectotype label to the specimen and deposited it in the U. S. National Museum, type no. 68923.

This species can be distinguished by the short first abdominal tergum and the transverse grooves on the tergum (2 + 3). On nearly all specimens that I have seen, the scutellar disc is convex. However, on a few specimens, including the lectotype, the scutellar disc is nearly flat.

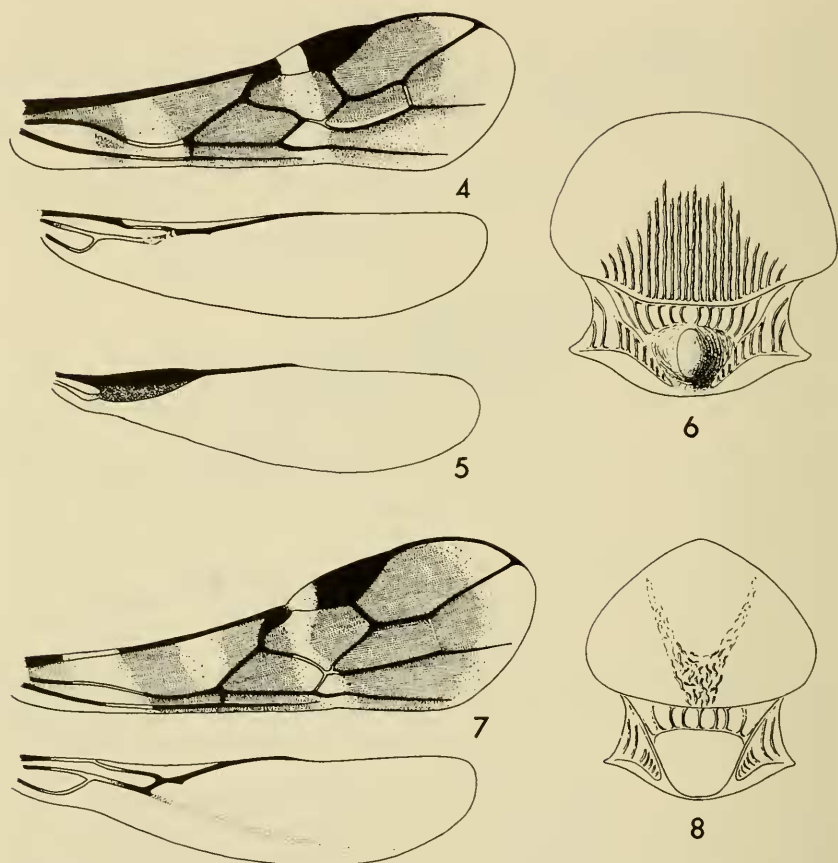
*Distribution*.—California, Louisiana, North Carolina, Texas, Virginia, Washington, D. C., and West Virginia. The specimen from California agrees completely with the lectotype and other eastern specimens, indicating that the distribution of *bifasciatus* is probably throughout the entire United States.

*Hosts*.—*Anthaxia viridicornis* (Say) and *Xylotrechus quadrimaculatus* (Haldman).

#### ***Callibormius stigmatus*, n. sp.**

(Figs. 4, 5, 6)

*Female*.—Length 3.5 mm. Color brown except abdomen beyond first segment which is dark brown, nearly black. Head transverse; eyes large, malar space less than one-half eye height; vertex and face striate, rest of head granular; antennae 27-segmented; distance between lateral ocelli equal to ocellular distance. Pronotum dorsally shorter than scutellar disc; mesonotum granular, with a wide, longitudinally rugose area in front of scutellar furrow (fig. 6); notauli absent except for very weak indications anteriorly; scutellar furrow with 8 cross carinae; scutellar disc strongly convex, triangular in transverse section; propodeum without a definite pattern of carinae, longitudinally rugose, lateral corners angulate; pro-



Figs. 4, 5, 7, wings of *Callihormius* species: fig. 4, *stigmatus*, female, fore and hind wings; fig. 5, *stigmatus*, male, hind wing; fig. 7, *texanus*, female, fore and hind wings. Figs. 6, 8, Dorsal view of mesonotum: fig. 6, *stigmatus*; fig. 8, *texanus*.

pleuron finely rugose; mesopleural disc granular; mesopleural furrow weakly foveolate, slightly longer than one-half mesopleural width. Fore wing with three dark cross bands, venation as in fig. 4; recurrent vein and cubitus sinuate, cubitus between recurrent and first intercubitus greater than one-half first segment of radius. First abdominal tergum much longer than apical width, longitudinally rugose, with no raised median area, spiracles prominent, tergum (2 + 3) longitudinally rugose on basal three-fourths, with one weak sinuate transverse groove; remainder of terga granular; ovipositor nearly as long as thorax and abdomen combined, curved upward.

*Male*.—Essentially as in female; hind wing and with a stigma (fig. 5).



*Holotype Female*.—FLORIDA: Homestead, July 19, 1918, G. E. Moznette, ex. buprestid in avocado. USNM type no. 68924.

*Paratypes*.—FLORIDA: 7 ♀♀, 1 ♂, same data as for type. LOUISIANA: Shreveport, 1 ♀, October, 1956. NEW JERSEY: Camden, 1 ♂, August 26, 1897. TEXAS: Foard County, 1 ♀, August 26, 1948, Stevens. Deposited in U. S. National Museum.

This species is quite distinct from others in the genus and can be recognized by the wing venation and convex scutellum. The male differs from other species in the presence of a stigma in the hind wing. There is no noticeable variation in the type series other than the number of antennal segments which ranged from 25 to 28. Besides the type series, I have seen two specimens from the Archbold Biological Station, Florida, which are entirely dark brown but are otherwise identical with the type.

*Distribution*.—The range of *stigmatus* is definitely throughout the southern gulf states but probably extends along the eastern coast, as indicated by the single specimen from New Jersey.

*Host*.—None recorded other than an unknown buprestid in avocado.

#### ***Callihormius texanus*, n. sp.**

(Figs. 7, 8)

*Female*.—Length 3.5 mm. Head, anterior portion of prothorax, legs, first abdominal tergum, and basal two-thirds of tergum (2 + 3) honey yellow, remainder of thorax brown, remainder of abdomen dark brown. Head transverse; vertex and frons granular, face finely rugulose, temples smooth; malar space slightly less than one-half eye height; antennae broken on type; distance between lateral ocelli less than ocellocular distance. Pronotum longer dorsally than scutellar disc; mesonotum granular; notauli very weakly indicated, with a small v-shaped foveolate area where they meet at scutellar furrow (fig. 8); scutellar furrow with 7 cross carinae; scutellar disc granular, convex; propodeum without definite carinae, rugose; mesopleural disc smooth; mesopleural furrow weakly foveolate, about three-fourths mesopleural width. Fore wings with three dark cross bands; venation as in fig. 7. First abdominal tergum nearly as wide at apex as long, longitudinally rugose, with a definitely raised median area; tergum (2 + 3) longitudinally rugose on basal two-thirds, with one sinuate, transverse groove; remainder of abdominal terga smooth; ovipositor less than one-third length of abdomen.

*Male*.—Unknown.

*Holotype Female*.—TEXAS: Double Bayou, August 26, 1918, E. L. Diven, on citrus borer. USNM type no. 68925.

This species, described from a single specimen, can be easily recognized by the maculation and venation of the wings, the short ovipositor, and the smooth mesopleural disc.

*Distribution*.—Known only from Texas.

*Host*.—Unknown.

**Callihormius weneri**, n. sp.

(Fig. 3)

*Female*.—Length 2.5 mm. Head, thorax, and first abdominal tergum red-brown, abdomen beyond first tergum dark brown, legs light brown, antennae honey yellow with last four flagellar segments black. Head strongly transverse; malar space equal to one-half eye height; vertex and frons finely granular, temples smooth, face finely rugulose; antennae 19-segmented; distance between lateral ocelli nearly equal to ocellocular distance. Thorax flattened dorsiventrally; notauli absent; pronotum dorsally longer than scutellar disc; mesonotum granular, with a wide, longitudinally rugose area in front of scutellar furrow; scutellar furrow with 8 cross carinae; scutellar disc flat, granular; propodeum nearly horizontal, coarsely punctate, carinae absent; mesopleural disc smooth; mesopleural furrow smooth, nearly as long as mesopleural width. Wing venation as in fig. 3; first segment of radius nearly equal to second. Length of first abdominal tergum equal to apical width; first tergum longitudinally rugose, median area not distinctly raised; tergum (2 + 3) longitudinally rugose, with one weak transverse groove; fourth and fifth terga granular, remainder of terga smooth; ovipositor less than one-half length of abdomen.

*Male*.—Unknown.

*Holotype Female*.—ARIZONA: Brown Canyon, Baboquivari Mountains, August 4, 1962, F. Werner, P. Johnson, U.V. lt. trap. USNM type no. 68926.

*Paratypes*.—ARIZONA: 8 miles N. Vail, Pima Co., 1 ♀, August 30, 1962, F. Werner, W. L. Nutting, U.V. lt. trap; Hk. Hwy. mi. 5, Santa Catalina Mountains, 1 ♀, August 11, 1961, Nutting, Werner.

This species can be recognized by its small size, wing venation, and flattened thorax. The color of the thorax and legs is occasionally lighter than in the type; also there may be as many as six dark segments at the tip of the antennae. The number of antennal segments ranges from 18 to 19.

*Distribution*.—Known only from Arizona.

*Host*.—Unknown.

This species is named for Floyd G. Werner, University of Arizona.

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